REMARKS

The following Remarks are made in response to the Non-Final Office Action mailed on March 15, 2001, in which claims 1-19 were rejected and claims 5 and 16 were objected to. With this Amendment, claims 1-19 have been cancelled without prejudice and claims 20-39 have been added. Claims 20-39, therefore, are presented for reconsideration and allowance.

Drawing Objection

The Examiner has objected to the drawings because they include a reference sign not mentioned in the description.

With this Amendment, the Specification has been amended to include reference sign "79". Applicant, therefore, respectfully requests that the objection to the drawings be reconsidered and withdrawn.

Objection to the Specification

The Examiner has objected to the Specification based on informalities including awkward wording.

With this Amendment, the Specification has been amended to address these informalities. Applicant, therefore, respectfully requests that the objection to the Specification be reconsidered and withdrawn.

Claim Objections

The Examiner has objected to claims 5 and 16 based on informalities.

With this Amendment, claims 5 and 16 have been cancelled without prejudice. These objections, therefore, are rendered moot.

Claim Rejections under 35 U.S.C. § 103

The Examiner has rejected claims 1-4, 7-11, 13-15, 18, and 19 under 35 U.S.C. § 103(a) as being unpatentable over the Kim U.S. Patent No. 6,128,117 in view of the Sedlmayr U.S. Patent No. 6,034,818. The Examiner has rejected claims 5, 6, 12, 16, and 17 under 35 U.S.C. §

103(a) as being unpatentable over the Kim U.S. Patent No. 6,128,117 in view of the Sedlmayr U.S. Patent No. 6,034,818, as applied to claims 1-4, 7-11, 13-15, 18, and 19, and further in view of the Kawakami et al. U.S. Patent No. 5,848,203.

With this Amendment, claims 1-19 have been cancelled without prejudice. The rejections under 35 U.S.C. § 103(a), therefore, are rendered moot.

With respect to the Kim, Sedlmayr, and Kawakami et al. patents, none of these patents, individually or in combination, teach or suggest a light pipe assembly, a method of optically coupling an optical transducer with an optical data port, and/or an optical interlink as claimed in newly submitted claims 20-39. Applicant, therefore, respectfully requests that claims 20-39 be considered and that claims 20-39 be allowed.

CONCLUSION

In view of the above, Applicant respectfully submits that pending claims 20-39 are all in condition for allowance and requests reconsideration of the application and allowance of all pending claims.

Attached hereto is a marked-up version of the changes made to the specification and/or the claims by the current Amendment. The attached pages are captioned "**VERSION WITH MARKINGS TO SHOW CHANGES MADE**".

Any inquiry regarding this Amendment and Response should be directed to Anthony Baca at Telephone No. (208) 396-3597, Facsimile No. (208) 396-3958. In addition, all correspondence should continue to be directed to the following address:

Hewlett-Packard Company
Intellectual Property Administration
P.O. Box 272400
3404 E. Harmony Road, M/S 35
Fort Collins, Colorado 80527-2400

Respectfully submitted,
(Curtis Gregory Kelsay)

By Anthony J. Baca
Reg. No. 33,472

June 28, 2001
Ph: (208) 396-3597

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Curtis Gregory Kelsay	Examiner: Kevin D. Williams	
Serial No.:	09/491,994	Group Art Unit: 2854	
Filed:	January 26, 2000	Docket No.: 10990356-1	
Title:	AN OPTICAL INTERLINK BETWEEN AN OPTICAL TRANSDUCER AND OPTICAL DATA PORT		

AMENDMENT AND RESPONSE

Commissioner for Patents
Washington, D.C. 20231

Dear Sir/Madam:

This Amendment and Response is in reply to the Non-Final Office Action mailed on March 15, 2001. Please amend the above-identified patent application as follows:

IN THE SPECIFICATION

Please replace the paragraph beginning at page 2, line 2, with the following rewritten paragraph:

--In order to accomplish the present invention there is provided an optical interlink which is made from an optical transducer capable of optically exchanging information. Information to and from the optical transducer passes through a light pipe transducer end and an optical data port end. The optical light pipe consists of separate transmit and ~~a~~ receive light pipes. To reduce losses as a result of the light pipe transmission, there ~~is~~ are lenses formed to collimate light between the transducer end of the light pipe and the optical transducer. The collimating lenses are formed in the light pipe. There are also provided additional lenses on the optical data port side of the light port. Transmitted light from the light pipe passes through a lens that increases the illumination angle of the light exiting from the optical data port. Received light passes through a lens that amplifies and collimates the light into the receiving light pipe.--

Please replace the paragraph beginning at page 3, line 31, with the following rewritten paragraph:

--Referring next to FIG. 3 where the transmit light pipe 70 is shown in greater detail. The transmit light pipe 70 is a constant cross section molded part with integral lens details on each

end. Lens 83 collimates the light rays from the IR transducer for more efficient coupling and transmission through the light pipe. Lens 82 at the window increases the angle of illumination 79 of light exiting the window thereby creating an acceptable "viewing" angle distribution of the light rays as they exit the printer.--

IN THE ABSTRACT

Please replace the Abstract beginning at page 8, line 1, with the following rewritten Abstract:

--An optical interlink made from an optical transducer capable of optically exchanging information. Information to and from the optical transducer passes through a light pipe transducer end and an optical data port end. The optical light pipe consists of separate transmit and ~~a~~ receive light pipes. To reduce losses as a result of the light pipe transmission, there ~~is~~ are lenses formed to collimate light between the transducer end of the light pipe and the optical transducer. The collimating lenses are formed in the light pipe. There are also provided additional lenses on the optical data port side of the light port. Transmitted light from the light pipe passes through a lens that increases the illumination angle of the light exiting from the optical data port. Received light passes through a lens that amplifies and collimates the light into the receiving light pipe.--

IN THE CLAIMS

Please cancel claims 1-19 without prejudice.
Please add new claims 20-39 as follows:

20. (New) A light pipe assembly adapted to optically exchange information between an optical transducer and an optical data port, the light pipe assembly comprising:

a transmit light pipe adapted to optically transmit information from the optical transducer to the optical data port; and

a receive light pipe adapted to receive information via the optical data port and optically transmit the received information to the optical transducer.

21. (New) The light pipe assembly of claim 20, wherein a first end of the transmit light pipe is adapted to be optically coupled to the optical transducer and a second end of the transmit light pipe is adapted to provide a portion of the optical data port.

22. (New) The light pipe assembly of claim 21, further comprising:

a first lens provided between the first end of the transmit light pipe and the optical transducer, wherein the first lens is adapted to optically couple the optical transducer to the transmit light pipe and collimate light received from the optical transducer into the first end of the transmit light pipe; and

a second lens provided at the second end of the transmit light pipe, wherein the second lens is adapted to increase an angle of light exiting the optical data port.

23. (New) The light pipe assembly of claim 22, wherein the first lens and the second lens of the transmit light pipe are formed as part of the transmit light pipe.

24. (New) The light pipe assembly of claim 22, wherein the angle of light exiting the optical data port is adapted to diverge from the optical data port.

25. (New) The light pipe assembly of claim 20, wherein a first end of the receive light pipe is adapted to be optically coupled to the optical transducer and a second end of the receive light pipe is adapted to provide a portion of the optical data port.

26. (New) The light pipe assembly of claim 25, further comprising:

a first lens provided between the first end of the receive light pipe and the optical transducer, wherein the first lens is adapted to optically couple the receive light pipe to the optical transducer; and

a second lens provided at the second end of the receive light pipe, wherein the second lens is adapted to collimate light received at the optical data port into the second end of the receive light pipe.

27. (New) The light pipe assembly of claim 26, wherein the first lens and the second lens of the receive light pipe are formed as part of the receive light pipe.

28. (New) A method of optically coupling an optical transducer with an optical data port, the method comprising the steps of:

receiving light rays at the optical data port;

collimating the received light rays into a first end of a receive light pipe;

optically transmitting the received light rays within the receive light pipe from the first end of the receive light pipe to a second end of the receive light pipe;

transmitting the received light rays to the optical transducer from the second end of the receive light pipe; and

receiving the received light rays at the optical transducer.

29. (New) The method of claim 28, wherein the step of collimating the received light rays includes passing the received light rays through a lens at the first end of the receive light pipe.

30. (New) The method of claim 28, further comprising the steps of:

transmitting light rays from the optical transducer;

collimating the transmitted light rays into a first end of a transmit light pipe;

optically transmitting the transmitted light rays within the transmit light pipe from the first end of the transmit light pipe to a second end of the transmit light pipe; and

distributing the transmitted light rays from the second end of the transmit light pipe.

31. (New) The method of claim 30, wherein the step of distributing the transmitted light rays includes exiting the transmitted light rays from the optical data port.

32. (New) The method of claim 31, wherein exiting the transmitted light rays from the optical data port includes increasing an illumination angle of the transmitted light rays exiting from the optical data port.

33. (New) The method of claim 32, wherein increasing the illumination angle of the transmitted light rays includes passing the transmitted light rays through a lens at the second end of the transmit light pipe and diverging the transmitted light rays exiting from the optical data port.

34. (New) An optical interlink, comprising:

an optical transducer adapted to optically exchange information;

a light pipe having a first end optically coupled to the optical transducer and a second end arranged to provide an optical data port; and

at least one of a transmit lens adapted to increase an angle of illumination of light exiting the optical data port and a receive lens adapted to collimate light into the light pipe.

35. (New) The optical interlink of claim 34, wherein the optical transducer is adapted to transmit and receive information optically, and wherein the light pipe provides bi-directional communication between the optical transducer and the optical data port.

36. (New) The optical interlink of claim 34, wherein the optical transducer includes an infra-red transducer.

37. (New) The optical interlink of claim 34, wherein the optical transducer includes a receive portion and a transmit portion, and wherein the light pipe includes a receive light pipe optically coupled to the receive portion of the optical transducer and a transmit light pipe optically coupled to the transmit portion of the optical transducer.

38. (New) The optical interlink of claim 37, wherein the optical interlink includes the transmit lens and the receive lens, wherein the transmit lens is adapted to increase the angle of illumination of light from the transmit light pipe and the receive lens is adapted to collimate light into the receive light pipe.

39. (New) The optical interlink of claim 34, wherein the optical interlink is configured to optically exchange information for a printer, wherein the optical transducer and the light pipe are disposed within the printer and wherein the light pipe is adapted to optically exchange information with the optical transducer and externally of the printer.